

**IS 3390: 1988**  
**Specification for Sphygmomanometers, Mercurial**

**Buying a BP Machine for hospital use? What one should know?**

**Sphygmomanometer** is a medical device used to measure the **Blood Pressure (BP)**, for the diagnosis of **hypertension**. The pressure exerted by the blood on the arteries, is measured in millimetres of mercury (mmHg). Healthcare professionals record the blood pressure as **systolic pressure** (maximum pressure when heart contracts) over the **diastolic pressure** (minimum pressure when heart relaxes). The manual mercurial measurement system consists of a **cuff, inflation bag, inflation bulb, control valve, connecting tube and pressure measuring device or manometer**.

This standard IS 3390 ensures that the blood pressure readings from the mercury sphygmomanometer are **accurate and reliable**. The device is tested for accuracy by decreasing the pressure by 2 mmHg across the range of the device.

It also confirms the **proper cuff and inflation bag functioning without leakage** for precise pressure measurement. The cuff and the bag made of appropriate material is subjected to **withstand the internal pressure** with a leakage rate not exceeding 10 mmHg per min and without leakage respectively.

It tests the **durability of the inflating bulb and the tubes** by subjecting it to an accelerated **aging** test (temperature of 70°C for 168 h). The Initial **tensile strength** of 105 kgf/cm<sup>2</sup> and **elongation** of 400 kgf/cm<sup>2</sup> shall not be reduced more than 20%.

**Marking** requirements and the **instructions for use manual** ensure that the essential information on the proper usage is being provided to the user. **Corrosion resistance test** is performed to ensure that the device resists corrosion in an adverse environment. **Packaging** requirements protect the device during transportation.

Product conforming to IS 3390 ensures that the mercury sphygmomanometer is accurate, reliable and safe for use.

*Note:* Ministry of Environment, Forest and Climate Change (MoEFCC) through Minamata Convention on Mercury prohibits the use of mercury in devices such as sphygmomanometers, to protect the human health and environment from mercury poisoning. Non-mercury based manual or automated digital sphygmomanometer is recommended for use.